CLAIMS

1. A composition comprising a cationic layered material and about 1-50 weight percent of aluminium oxide, aluminium hydroxide, metal aluminate, or aluminium molybdate.

2. The composition of claim 1 wherein the aluminium oxide or hydroxide is doped with rare earth metals or transition metals.

3. The composition of claim 1 containing one or more additives selected from the group consisting of oxides, hydroxides, borates, zirconates, aluminates, sulfides, carbonates, nitrates, phosphates, silicates, titanates, and halides of rare earth metals Si, P, B, Group VI metals, Group VIII noble metals, alkaline earth metals and transition metals.

4. A composition comprising a cationic layered material and a divalent metal compound.

5. The composition of claim 4 containing one or more additives selected from the group consisting of oxides, hydroxides, borates, zirconates, aluminates, sulfides, carbonates, nitrates, phosphates, silicates, titanates, and halides of rare earth metals Si, P, B, Group VI metals, Group VIII noble metals, alkaline earth metals and transition metals.

6. A composition comprising a cationic layered material and a transition metal compound.

7. The composition of claim 6 containing one or more additives selected from the group consisting of oxides, hydroxides, borates, zirconates, aluminates, sulfides, carbonates, nitrates, phosphates, silicates, titanates, and halides of

rare earth metals Si, P, B, Group VI metals, Group VIII noble metals, alkaline earth metals and transition metals.

8. An FCC catalyst composition comprising a cationic layered material.

9. An FCC catalyst additive composition comprising a cationic layered material.

10. A process for the preparation of a cationic layered material from an aluminium source and a divalent metal source, comprising the steps of:

a) preparing a slurry comprising a water-insoluble aluminium source and a divalent metal source,

b) drying the slurry of step a) and calcining the dried material to form a first calcined material,

c) optionally rehydrating the product of step b) to obtain an anionic clay, followed by calcining the anionic clay to form a second calcined material,

d) contacting a slurry of either the first or the second calcined material with an ammonium transition metal salt, and

(e) aging the resulting slurry.

11. The process of claim 10 wherein the slurry of step a) is aged before conducting step b).

12. A process of claim 10 wherein the product of step e) is filtered and washed.

13. The process of claim 10 wherein in step b) the dried slurry is shaped before calcination.

14. The process of claim 10 wherein the anionic clay obtained in step c) is shaped before calcination.

15. The process of claim 10 wherein the water-insoluble aluminium source is selected from the group consisting of alumina gel, boehmite, pseudoboehmite, aluminium trihydrate, thermally treated forms of aluminium trihydrate, and mixtures thereof.

16. The process of claim 10 wherein the water-insoluble aluminium source is doped with at least one metal compound.

17. The process of claim 10 wherein the divalent metal is an oxide, hydroxide, hydroxycarbonate, carbonate, formate, or acetate of Zn^{2+}, Mn^{2+}, Co^{2+}, Ni^{2+}, Fe^{2+}or Cu^{2+}, or a combination thereof.

18. The process of claim 10 wherein the ammonium transition metal salt is an ammonium transition metal salt selected from the group consisting of ammonium heptamolybdate, ammonium tungstate, ammonium vanadate or ammonium dichromate, and combinations thereof.

19. The process of claim 10 wherein the product of step e) is dried and the resulting dried product is calcined at about 200-1,000°C.

20. The process of claim 19 wherein the calcined product is rehydrated in the presence of an additive.

21. A shaped body obtained by the process of claim 13.

22. A shaped body obtained by the process of claim 14.

23. A process for the conversion, purification, or synthesis of hydrocarbons wherein hydrocarbons are contacted with a cationic layered material at hydrocarbon conversion, purification, or synthesis conditions.

24. The process of claim 23 wherein the process is a hydrodesulfurization, hydrodenitrogenation, fluid catalytic cracking, or Fischer-Tropsch process.

25. The process of claim 23 wherein the process effects reduction of SOx and/or NOx emissions.

26. The process of claim 24 wherein the process is a fluid catalytic cracking process for the reduction of the nitrogen and/or sulfur content of fuels.

27. The process of claim 26 wherein said fuels comprise gasoline and/or diesel.